



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,019	09/12/2003	Feng Chen	TI-35765 (032350.B523)	6817
23494	7590	04/27/2004	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265			JEAN PIERRE, PEGUY	
			ART UNIT	PAPER NUMBER
			2819	
DATE MAILED: 04/27/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/661,019	CHEN, FENG	
	Examiner	Art Unit	
	Peguy JeanPierre	2819	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2003.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 20 is/are allowed.
6) ☒ Claim(s) 1-4, 7-10, 13-16 and 19 is/are rejected.
7) ☒ Claim(s) 5, 6, 11, 12, 17 and 18 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 12 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>4/20/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed on 9/12/2003 has been considered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 7-10, 13-16, and 19 rejected under 35 U.S.C. 103(a) as being unpatentable over Khouty et al. (USP 6,121,910), in view of Muhammad et al. (US 2003/0080888).

With regard to claims 1-4, 7-10, 13-16, 19, Khoury et al. disclose in Figure 1 a sigma delta modulator to digitize an analog input signal having an intermediate frequency signal (fin). The converter comprises a filter (104) that can be implemented as a bandpass or highpass filter (see col. 4, lines 48-53), a quantizer (108) that can be implemented as a comparator or ADC converter (see col. 4, lines 65-67).

With regard to claims 1, 7, 13 and 19, Khoury et al. do not disclose a sample and hold circuit that sample the analog input signal, a passive filter; with further regard to claim 13, a connection of the quantizer output with a sample and hold circuit. Muhammad et al. disclose in Figure 2 a sampling circuit (210) that samples an analog input signal to be supplied to a processing circuit that can be implemented as passive circuit i.e a switched capacitor circuit (see paragraph 27). Muhammad et al. also disclose a

Art Unit: 2819

feedback path that connects the output of the quantizer to the sample and hold circuit for the benefit of noise shaping and high frequency operation. Therefore, it would have been obvious to one having ordinary skill in the art to modify the modulator of Khoury et al. by sampling and holding the analog input signal before it is provided to the filter and connecting the output of the quantizer to the sample and hold circuit as taught by Muhammad et al. to provide a high sample rate converter with minimal amount of noise to increase the overall performance of the sigma delta modulator.

Allowable Subject Matter

3. Claims 5-6, 11-12, 17-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. Claim 20 is allowed.


5. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not teach a system that comprises a switched capacitor/passive filter circuit that filters a sampled signal, a timing and a control signal that switches the switched capacitor circuit to yield a high pass filtered signal; the highpass filter signal is interleaved with the control signal.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ignjatovic et al. (USP 6,707,409), Steengaard-Madsen (USP 6,556,158), and Galton (USP 5,369,404), disclose sigma delta modulator analog to digital converters.

Art Unit: 2819

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peguy JeanPierre whose telephone number is (571) 272-1803. The examiner fax phone number is (571) 273-1803.


Peguy JeanPierre
Primary Examiner